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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/730,995

12/10/2003

Hidetoshi Nishikawa

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7590

08/12/2004

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EXAMINER

VU, HUNG K

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/730,995	Applicant(s) NISHIKAWA ET AL.	
	Examiner Hung K. Vu	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/10/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 3-7 are objected to because of the following informalities: In claims 3-7, line 1, "A" should be changed to "The" for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Ekkanath Madathil (PN 6,724,043).

With regard to claim 1, Ekkanath Madathil discloses, as shown in Figures 1-12b, an open-drain N-channel MOSFET comprising:

- a drain region (22) formed of an N-type semiconductor layer;
- a P-type impurity diffusion layer (34) formed within the drain region;
- two high-concentration N-type impurity diffusion layers (36a,36b) formed within the drain region so as to sandwich the P-type impurity diffusion layer;
- a drain electrode (40) connected to the P-type impurity diffusion layer and to the two high-concentration N-type impurity diffusion layers.

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With regard to claim 2, Ekkanath Madathil discloses, as shown in Figures 1-12b, a semiconductor integrated circuit device comprising:

- an output circuit,

- wherein the output circuit comprises:

- an open-drain N-channel MOSFET;

- an output terminal connected to a drain of the open-drain N-channel MOSFET,

- wherein the open-drain N-channel MOSFET comprises:

- a drain region (22) formed of an N-type semiconductor layer;

- a P-type impurity diffusion layer (34) formed within the drain region;

- two high-concentration N-type impurity diffusion layers (36a,36b) formed within the drain region so as to sandwich the P-type impurity diffusion layer;

- a drain electrode (40) connected to the P-type impurity diffusion layer and to the two high-concentration N-type impurity diffusion layers.

With regard to claim 3, Ekkanath Madathil discloses there are provided a plurality of the output circuit.

With regard to claim 6, Ekkanath Madathil discloses the drain region and the source region of the open-drain N-channel MOSFET have configuration, therefore, it is inherent that a peripheral portion the drain region and a peripheral portion of a source region of the source region of the open-drain N-channel MOSFET have different shapes as seen in a plan view.

3. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheng et al. (PN 6,576,934).

With regard to claim 1, Cheng et al. discloses, as shown in Figures 5-9, an open-drain N-channel MOSFET comprising:

- a drain region (612) formed of an N-type semiconductor layer;
- a P-type impurity diffusion layer (622) formed within the drain region;
- two high-concentration N-type impurity diffusion layers (620,624) formed within the drain region so as to sandwich the P-type impurity diffusion layer;
- a drain electrode connected to the P-type impurity diffusion layer and to the two high-concentration N-type impurity diffusion layers.

With regard to claim 2, Cheng et al. discloses, as shown in Figures 5-9, a semiconductor integrated circuit device comprising:

- an output circuit,
- wherein the output circuit comprises:
 - an open-drain N-channel MOSFET;
 - an output terminal connected to a drain of the open-drain N-channel MOSFET,
- wherein the open-drain N-channel MOSFET comprises:
 - a drain region (612) formed of an N-type semiconductor layer;
 - a P-type impurity diffusion layer (622) formed within the drain region;

two high-concentration N-type impurity diffusion layers (620,624) formed within the drain region so as to sandwich the P-type impurity diffusion layer;

a drain electrode connected to the P-type impurity diffusion layer and to the two high-concentration N-type impurity diffusion layers.

With regard to claim 3, Cheng et al. discloses there are provided a plurality of the output circuit.

With regard to claim 5, Cheng et al. discloses the drain region and a source region of the open-drain N-channel MOSFET are formed in a pattern like teeth of a comb.

With regard to claim 6, Cheng et al. discloses the drain region and the source region of the open-drain N-channel MOSFET have configuration, therefore, it is inherent that a peripheral portion the drain region and a peripheral portion of a source region of the source region of the open-drain N-channel MOSFET have different shapes as seen in a plan view.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ekkanath Madathil (PN 6,724,043).

Although Ekkanath Madathil does not teach exact the shape and the pattern of the peripheral portions of the drain region and a source region and the gate, as that claimed by Applicants, the shape and the pattern differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

5. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (PN 6,576,934).

Although Ekkanath Madathil does not teach exact the shape and the pattern of the peripheral portions of the drain region and a source region and the gate, as that claimed by Applicants, the shape and the pattern differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666.

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The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

August 3, 2004

A handwritten signature in black ink, appearing to read "Hung Vu", with a horizontal line drawn underneath the name.

Hung Vu

Patent Examiner